

Identifying Hot Spots for Chemical Classes

6/11/12

Issue

-Should high concentration hot spots of contamination be identified on the basis of a “hazardous substance” or by individual chemicals composing that hazardous substance? For example, should high concentration hot spots in sediment contaminated with polychlorinated biphenyls (PCBs) be identified by total PCBs (a listed hazardous substance) or by the individual congeners composing that hazardous substance?

Background

- OAR 340-122-0115(32)(b) defines high concentration hot spots in media other than groundwater or surface water (e.g., sediment) as hazardous substances exceeding risk-based concentrations corresponding to:
 - i) 100 times the acceptable risk level for human exposure to each individual carcinogen;
 - ii) 10 times the acceptable risk level for human exposure to each individual noncarcinogen; or
 - iii) 10 times the acceptable risk level for exposure of individual ecological receptors or populations of ecological receptors to each individual hazardous substance.
- OAR 340-122-0115(37) defines “noncarcinogen” as hazardous substances with adverse health effects on humans other than cancer.
- Both PCBs & polyaromatic hydrocarbons (PAHs) are listed as individual hazardous substances in federal regulations (40 CFR 302.4).
- However, for PCBs, 40 CFR 302.4 also lists all 7 Aroclors (but not congeners) as hazardous substances. Aroclors is the industrial trade name for a type of commercially produced PCB mixtures sold in the United States.
- For PAHs, 40 CFR 302.4 also lists a select subset of the greater than 100 species of PAHs as hazardous substances (e.g., anthracene, benzo[a]pyrene, etc.) as hazardous substances.
- Oil (as measured by total petroleum hydrocarbons, TPH) is defined as a hazardous substance in state statute (ORS 465.200(16)).

DEQ Position

- Chemical classes (e.g., PCBs, PAHs, TPH) listed as individual hazardous substances should be used as the basis of defining high concentration hot for noncarcinogenic & ecological effects. Individual chemicals (e.g., congener PCB 126) or individual hazardous substances (e.g., anthracene) composing these broader chemical classes of hazardous substances should not be used as the basis of defining high concentration hot for noncarcinogenic & ecological effects.